

REMEDIAL SITE ASSESSMENT DECISION - EPA REGION I

Site Name: Alling Lander Company EPA ID#: CTD098186042

Alias Site Names: _____

City: Cheshire County or Parish: _____ State: CT

Refer to Report Dated: July 5, 1994 Report type: SLP

Report developed by: CDM FPC ARCS



SEMS DocID 643377

DECISION:

1. Further Remedial Site Assessment under CERCLA (Superfund) is not required because:

1a. Site does not qualify for further remedial site assessment under CERCLA (Site Evaluation Accomplished - SEA)

1b. Site may qualify for further action, but is deferred to:

RCRA
NRC

2. Further Assessment Needed Under CERCLA:

2a. (optional) Priority: ☒ Higher ☐ Lower

2b. Activity
Type:

PA
SI

ESI
☒ HRS evaluation

Other: _____

DISCUSSION/RATIONALE:

Report Reviewed
and Approved by: _____

Signature: _____

Date: _____

Site Decision
Made by: _____

Signature: _____

Date: _____

ARCS I

Final Site Inspection Prioritization Report

Alling Lander Company

Cheshire, Connecticut

Prepared for

**U.S. ENVIRONMENTAL PROTECTION AGENCY, Region I
Waste Management Division
Boston, MA**

**Work Assignment No.: 23-1JZZ
EPA Region: I
CERCLIS No.: CTD098186042
TDD No.: 9305-14-ACX
Contract No.: 68-W9-0045
Document No.: 7710-023-FR-BJXC
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**Final Site Inspection Prioritization Report
Alling Lander Company
Cheshire, Connecticut**

**CERCLIS No. CTD098186042
TDD No. 9305-14-ACX
Work Assignment No. 23-1JZZ
7710-023-FR-BJXC**

INTRODUCTION

The CDM Federal Programs Corporation (CDM) Alternative Remedial Contracting Strategy (ARCS) team was requested by the U.S. Environmental Protection Agency (EPA) Region I Waste Management Division to perform a Site Inspection Prioritization (SIP) of the Alling Lander Company property in Cheshire, Connecticut. Tasks were conducted in accordance with the ARCS Contract No. 68-W9-0045, the Site Inspection Prioritization scope of work dated September 3, 1992, and technical specifications provided by EPA under Work Assignment No. 23-1JZZ, which was issued to CDM on September 22, 1992. A Preliminary Assessment (PA) was prepared by the NUS Corporation Field Investigation Team (NUS/FIT) on January 26, 1987. On the basis of the information provided in the PA report, the Alling Lander Company Site Inspection was initiated. A Site Inspection (SI) report was prepared by NUS/FIT on August 23, 1991. Updated information encountered during the SIP process is included in this report. Relevant text from the SI and other reports are also presented in this report, indented and in a smaller font.

Background information used in the generation of this report was obtained through file searches conducted at the Connecticut Department of Environmental Protection (CTDEP), telephone interviews with town officials, conversations with persons knowledgeable of the Alling Lander Company property, and conversations with other federal, state, and local agencies. Additional information was collected during the CDM onsite reconnaissance on November 23, 1993.

This package follows the guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA regulations, such as those under the Resource Conservation and Recovery Act (RCRA) or other federal, state, or local regulations. SIPs are intended to provide a preliminary screening of sites to facilitate EPA's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

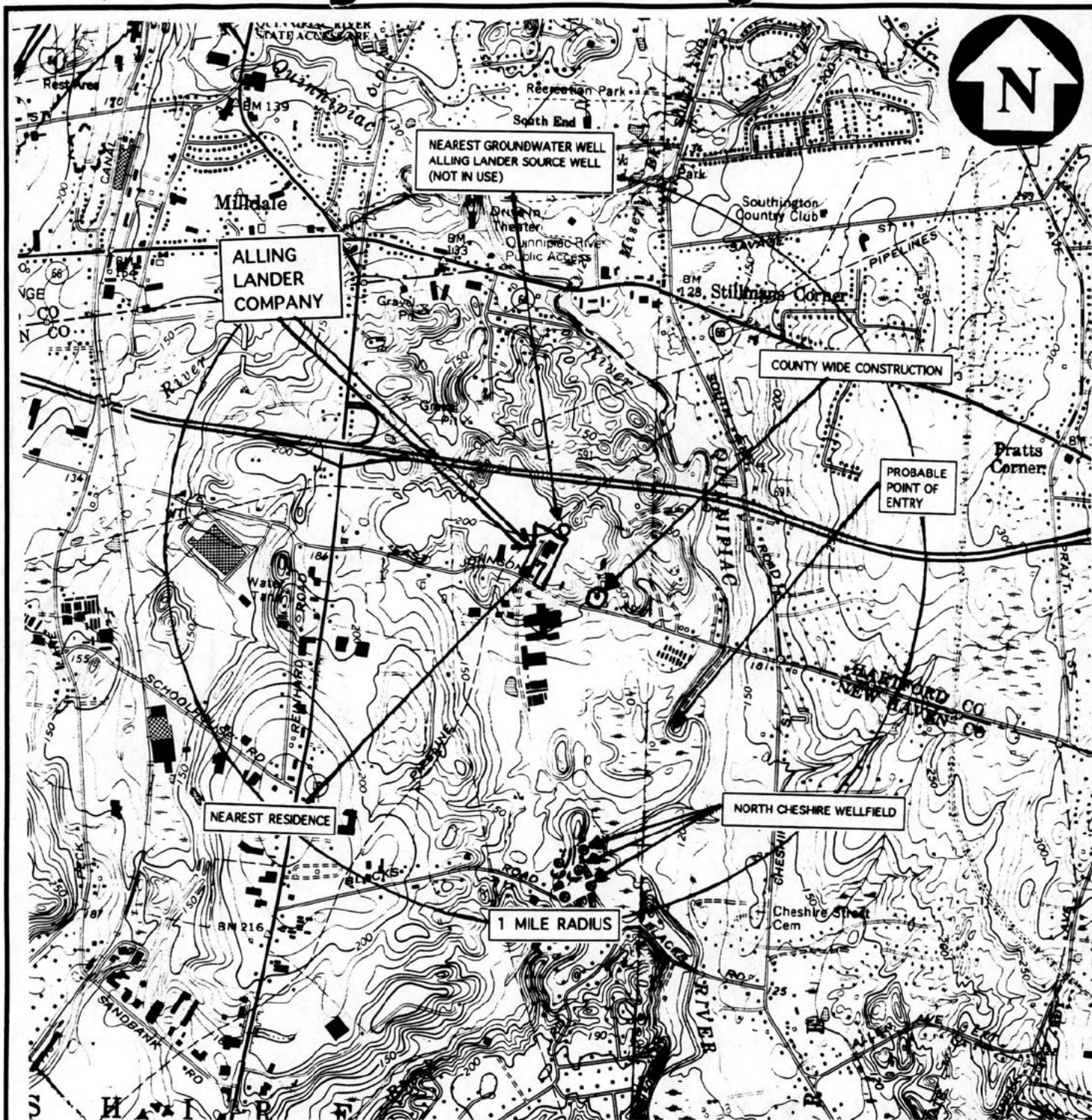
SITE DESCRIPTION

The Alling Lander Company (Alling Lander) is located at 300 East Johnson Avenue in Cheshire, New Haven County, Connecticut (See Figure 1: Location Map). Prior to 1980, the property consisted of a 22-acre lot that was heavily wooded in the northern portion [2,9]. In 1980, the property was subdivided into two lots. The Alling Lander building is in the southern lot, occupying 8 acres [2,9]. The main building, located in the center of the property, consists of two single-story sections built in 1962 (northern portion) and 1975 (southern portion) [2,9]. The geographic coordinates of the northern portion of the Alling Lander building are latitude: 41° 33' 10.7" North and longitude: 72° 52' 48.4" West [2,30].

The Alling Lander property is level to the north and uneven, sloping slightly down, to the south. The northwest corner of the Alling Lander property is paved and was used as a parking lot. The remainder of the northern area consists of a lawn with sparse tree cover. To the south of the parking lot is a garage formerly used to store paints and other equipment reportedly used by Alling Lander. There is also a smaller metal-sided shed previously used to store drums of waste solvent. To the north of the metal-sided shed, along the western side of the paved parking lot, is the former location of two dumpsters. In 1985, CTDEP noted stains near one dumpster. Contaminated soils were removed from the area where the dumpster was located, where Alling Lander Company also reportedly stored drums. This area was backfilled with clean sandy soil [9,14].

The southern portion of the property is primarily uneven terrain that has remained undisturbed by the activities conducted by Alling Lander or previous occupants of the property. Several dry wells and two septic tanks, all located to the east of the southern building, received septic effluent as well as cooling wastewater [1,9]. A drainage swale carries stormwater, collected by several catch basins located along the western side of the building, offsite to the east [1,9].

The Alling Lander property is bordered by two residential properties to the south; woods to the west and north; and by a property occupied by CNC Manufacturing Co., Inc. (previously occupied by Cheshire Manufacturing Co., Inc.) that steeply slopes down to the east [1,14]. There are two access roads for Alling Lander. Both access roads are from East Johnson Avenue; one runs along the western boundaries of the two neighboring residential properties and the other runs along the eastern boundary (see Figure 2: Site Sketch) [1,2,9]. There is a large horticulture business, Delucia's Greenhouse, located to the south across East Johnson Avenue from Alling Lander [26].



SOURCE: BASE MAP IS PORTION OF THE FOLLOWING US GEOLOGICAL SURVEY (TOPOGRAPHIC)
 QUADRANGLES: SOUTHTON, CT, 1968, PHOTOREVISED 1992; AND MERIDEN, CT, 1967, PHOTOREVISED 1992.

LOCATION MAP ALLING LANDER COMPANY CHESHIRE, CT



CDM FEDERAL PROGRAMS CORPORATION
 a subsidiary of Camp Dresser & McKee Inc.

Figure 1

(b) (9)



CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

SITE SKETCH
ALLING LANDER COMPANY
CHESHIRE, CONNECTICUT

Figure 2

OPERATIONAL AND REGULATORY HISTORY AND WASTE CHARACTERISTICS

Prior to 1962, the property was undeveloped wooded land. Between 1962 and 1980, New England Gear Works, a subsidiary of Robbins & Meyers, Inc., operated a gear manufacturing business at the Alling Lander property. Between 1980 and 1988, Alling Lander manufactured gearboxes for conveyors, door operators, and similar products. Alling Lander purchased the property on April 16. CDM did not determine whether Alling Lander began operations on this date. Alling Lander changed its name on June 27, 1986, to TPB Corporation; however, it maintained the same operations [2,14]. First Properties Limited Partnership purchased the property on March 21, 1988. The partnership has subsequently declared bankruptcy; however, due to the results of environmental investigations at the property, the bank that owned the mortgage did not foreclose, leaving the property in the partnership's trust. The bank that owned the mortgage has also become insolvent, and the Federal Depositors Insurance Corporation (FDIC) has therefore taken possession of the mortgage to the property [23,25]. County-Wide Construction and Summit Construction Services leased the building from First Properties Limited as a warehouse between 1988 and 1991. The building was also occupied by Sonnenschein Battereien, as a distribution facility for its dry-cell batteries (no acids used) [9,14]. The building is currently unoccupied [1].

The exact operations conducted by and waste management practices of New England Gear Works, were not determined by CDM. New England Gear Works did manufacture the same products as Alling Lander. Previous documents have assumed that the waste management practices of New England Gear Works were similar to those employed by Alling Lander [14]. New England Gear Works did use the same trichloroethylene (TCE) vapor degreaser used by Alling Lander [9]. No documentation was found regarding how the waste TCE and other waste products were disposed.

The gear manufacturing process involved the drilling, boring, turning, and grinding of metal parts [9,14]. The machines used in these processes were cleaned and cooled with chlorinated solvents. The cut and ground parts were also cleaned with a vapor degreaser, using TCE. The waste solvents used at Alling Lander Company were deposited in drums stored inside of and to the north of the steel shed. An inspection report filed by the CTDEP in 1984 indicates that prior to 1984, waste cooling water was possibly deposited on the north lawn, and waste solvents were stored outdoors near the metal-sided shed. Solvents used by Alling Lander included 1,1,1-trichloroethane (TCA) and TCE [9,14].

According to a memo written to the CTDEP Hazardous Waste Unit, Alling Lander Company admitted to having spilled the contents of an entire drum of either TCA or TCE within the building as early as 1979. This date was possibly reported in error, because the assessor's property street card states that Alling Lander took possession of the property only in March 1980 [2]. Since there were floor drains in the building prior to 1983, it is possible that the contents of this spill infiltrated the subsurface soils below the building [7]. The floor drains were apparently filled; NUS/FIT could not locate the floor drains in 1991. Based on the results of

recent subsurface soil sampling activities, it is apparent that the floor drains may have drained directly to the ground beneath the building [11].

Table 1 provides a summary of the ownership history and the occupants of the Alling Lander Company property. This table is different than the ownership history table provided in the NUS/FIT SI report. Table 1 incorporates updated information gathered in the Cheshire tax assessor's office. New England Gear Works was a subsidiary of Robbins & Meyers, Inc., a company named in the SI report as the owners of the Alling Lander property between 1969 and 1980 [2,14].

TABLE 1
Ownership History of
Alling Lander Company Property

| Date | Owner | Occupant | Land Use |
|-----------|--------------------------------------|------------------------------|---------------------------------|
| to 1962 | Not Available | Not Available | Vacant lot |
| 1962-1980 | New England Gear Works | New England Gear Works | Gear manufacturing |
| 1980-1986 | Alling Lander Company | Alling Lander Company | Gear and gear box manufacturing |
| 1986-1988 | TPB Corp. | TPB Corp. | Gear and gear box manufacturing |
| 1986-1989 | TPB Corp. | Sonnenschein Batterien | Battery distribution |
| 1989-1990 | First Properties Limited Partnership | Summit Construction Services | Warehouse |
| 1989-1990 | First Properties Limited Partnership | County-Wide Construction | Office space |

[2,9]

Between 1980 and 1984, Alling Lander used a TCE vapor degreaser to clean machined parts. The vapor degreaser was located in the southeastern corner of the 1975 building portion. Starting in 1984, Alling Lander used a freon/methylene chloride vapor degreaser [14].

Accurate documentation of Alling Lander's waste management practices does not exist. The following information regarding its practices has been assembled from various reports. CDM

was not able to verify the accuracy of the substances or quantities used, stored or disposed of by Alling Lander. Between 1980 and 1984, Alling Lander used approximately 1,000 to 1,500 gallons of TCA per year and approximately 400 gallons of cutting oil per year in its manufacturing processes. Cool-Tool, a cutting oil additive, containing 33 percent TCA, ended up as a waste mixed with the cutting oil. Waste cutting oils, produced at a rate of approximately two to eight drums per month, were handled in several areas of the facility. During an inspection of the property on January 9, 1984, CTDEP noted approximately 40 drums of waste cutting oil stored near the metal shavings dumpster [14]. Between 1982 and 1984, Environmental Waste Resources (EWR) of Waterbury, Connecticut, hauled waste cutting oil from the property every 6 months [8,14]. Between 1984 and 1988, Detrex hauled Alling Lander's waste freon/methylene chloride away [14].

Prior to 1984, cooling water associated with the manufacturing process was discharged to the north lawn (exact location not documented). Starting in 1984, cooling water was discharged directly to the septic system [8,9,14].

A dumpster used to dispose of metal shavings and TCE stillbottoms was located to the west of the parking lot (see Figure 2: Site Sketch). A CTDEP Hazardous Waste Inspection Checklist, filed for a January 9, 1984 inspection, indicated that soils were stained in the vicinity of the dumpster (north of the metal-sided shed). Surface runoff from this area enters a storm drain [1,14]. The facility used Safety-Kleen solvent (three 30-gallon containers); there is no documented evidence of any historical release of the degreasing solvent [14].

Waste cutting oil and TCE were stored in drums to the north of the metal-sided shed. During the 1984 inspection, CTDEP documented that approximately 40 drums of waste TCA and three drums of waste TCE were stored on the ground near a "metal shavings dumpster" [8]. In 1987, approximately 2,750 cubic feet of soil contaminated with TCA, tetrachloroethylene (PCE), and TCE were removed from the area to the north of the metal-sided shed, where the dumpster was located [9].

Groundwater samples have been collected from the onsite drinking water source, downgradient wells, and several monitoring wells located at and near Alling Lander Company. The onsite wells have been sampled by CTDEP Water Compliance Unit, Chesprocott Health District, Heynen Engineers, Dames & Moore, and HRP Associates, Inc (HRP). The Chesprocott Health District collected samples only from the Alling Lander Company drinking water well and other drinking water wells to the east of Alling Lander Company, on East Johnson Avenue [9].

Table 2 presents a summary of the significant events and investigations at the Alling Lander Company.

TABLE 2

**Summary of Significant Events and Previous Work at
Alling Lander Company**

| Date | Event |
|------------------------------------|---|
| 1979 | South Central Connecticut Regional Water Authority (SCCRWA) wells become contaminated with 50 to 200 micrograms per liter ($\mu\text{g/l}$) TCE. This initiates the installation of 40 monitoring wells. |
| 1979 | Alling Lander reports spill of drum of TCE/TCA inside building by Alling Lander employees. Date may have been 1980, as Alling Lander only purchased property in April 1980. |
| 1983 | SCCRWA completes hydrogeological study on groundwater contamination. SCCRWA concludes that the source of the contamination is most likely to the north of the wellfield. |
| November 1983 | Four private drinking water wells on East Johnson Avenue found to be contaminated with TCE. |
| November 1983 through January 1984 | CTDEP conducts a series of sampling activities at Alling Lander. Surface soil and waste/source samples collected. |
| February and March 1984 | Heynen Engineers installs five monitoring wells (AL-1 through AL-5) and collects aqueous samples. Heynen Engineers concludes that Alling Lander is most likely not the source of the contaminated private drinking water wells. |
| November 1984 | Legette, Brashears and Graham (LBG) reviews Heynen Engineer's report for CTDEP. LBG concludes that, because of erroneous gradient calculations, and the nature of contaminants, that Alling Lander is a potential source of the contaminated private drinking water wells. |
| April 1986 | CTDEP requires additional deep monitoring well installation to conclude groundwater contamination debate. |
| April and May 1986 | Dames & Moore, contracted by Alling Lander, installs AL-8 and AL-9 and collects samples. In the executive summary of their report, Dames & Moore states that no contaminants were detected. A letter from SCCRWA to CTDEP indicates that TCE was detected up to 37 $\mu\text{g/l}$ in AL-9. |
| June 1986 | SCCRWA collects samples from AL-8 and AL-9. No contaminants were detected above 1 $\mu\text{g/l}$ in AL-8. TCE was detected up to 36 $\mu\text{g/l}$ in AL-9. |
| July 1987 | Philip W. Genovese & Associates, Inc. removes 2,750 cubic feet of soil contaminated with TCA, PCE, and TCE from roll-off drum storage area (under the dumpster to the north of the metal-sided shed). |
| 1988 | Alling Lander (TPB Corporation) ends operations at 300 East Johnson Avenue. |
| April 1991 | NUS/FIT conducts an onsite reconnaissance. NUS/FIT does not collect samples at Alling Lander. |
| July 1991 | HRP installs four monitoring wells (MW-1, 4, 6, 8), digs 10 test borings, and collects six surface soil samples. |
| April and May 1992 | HRP installs three monitoring wells (MW-15,16,17), digs three test pits and 11 test borings, and conducts an 82 point soil gas survey underneath the building and to the southeast of the building. |
| 1993 | CDM conducts an onsite reconnaissance. CDM does not collect any samples. |

[9,14,19]

Permits held since the Alling Lander Company began operations at this location are summarized below:

On February 29, 1984, a 30 day Temporary Hazardous or Controlled Waste Disposal permit (#PTP-000001032) was issued to Alling Lander by CT DEP to allow for the disposal of trichloroethylene (TCE), waste oil, TCE contaminated waste oil, and fuel oil tank water/sludge mixture by the state licensed waste haulers EWR, Detrex and RAYMAR (ALC 1984) [14].

In 1986, Alling Lander requested a status change to a small quantity generator (CT DEP 1986a). On July 1, 1987, Alling Lander provided EPA with a Notification of Hazardous Waste Activity statement acknowledging its generation of less than 1,000 kilograms per month of materials in an application for an EPA identification number (U.S. EPA undated, 1991a). Alling Lander had been assigned EPA identification number CTD098186042 in 1988 when the CT DEP requested that Alling Lander sign a Certification Statement prior to official approval of the status change (CT DEP 1988f). Alling Lander's RCRA status is that of a small quantity generator; it has no RCRA status as a treatment, storage or disposal facility and holds no National Pollution Discharge Elimination System Permit (U.S. EPA 1991a, 1991b, 1991c, 1991d) [14].

Based on sample collection and analysis [see Waste/Source Sampling section], which provided evidence of uncontrolled hazardous waste disposal from the property, the CT DEP issued to Alling Lander on December 19, 1983, an Order to Abate Pollution (Order No. 3652), and on January 26, 1984, issued Alling Lander an Order to Provide Potable Drinking Water (Order No. 3679) (CT DEP 1983b, 1984e). The Order to Abate Pollution required Alling Lander to investigate the extent and degree of groundwater, surface water and soil contamination from chemical storage handling and disposal activities at 300 East Johnson Avenue, to take the necessary remedial actions to minimize or eliminate the contamination resulting from such practices, and to implement a plan to provide for best management practices for chemical storage, handling and disposal (CT DEP 1983b). Alling Lander Company changed its corporate name to TPB Corporation (TPB) on June 20, 1986 (CT DEP 1991). On May 5, 1987, a Consent Order (Order No. WC4516) was issued to TPB (CT DEP 1987b). The Consent Order revoked both Order No. 3652 and Order No. 3679 as of that date (CT DEP 1987a, 1987b, 1987c, 1991). As part of the Consent Order, Alling Lander agreed to remove solvent contaminated soil from the catch basins and the rolloff container area and to provide a long-term potable drinking water supply, which meets the standards for drinking water established by the commissioner of Health Services, to the following properties: Caroline Zaleski (Assessor's Map No. 12, Lot No. 8), County-Wide Home Improvement & Maintenance (Assessor's Map No. 12, Lot No. 10) and Mary M. Bennett (Assessor's Map No. 12, Lot No. 10) (CT DEP 1987b) [14].

On several occasions between 1987 and 1988, the CT DEP returned to Alling Lander improperly completed hazardous waste transport manifests for corrections. . . [14].

In 1988, Alling Lander failed to submit the 1987 Large & Small Quantity Generator Hazardous Waste Biennial Report to CT DEP in a timely manner. After Alling Lander submitted the report, the CT DEP returned it to them for correction because some of the required information was either missing or incorrect [14].

On November 23, 1993, a CDM field team conducted an onsite reconnaissance at the Alling Lander property to document the current conditions of the property, the distance from the potential source areas to the nearest residences, and the locations of the various wells. CDM did not observe any surficial soil staining or any recently deposited waste. CDM noted that the facility is currently inactive. The building is filled with various window pains and paper waste, presumably left by County-Wide Construction or Summit Construction Services. CDM did not observe any floor drains [1].

Businesses on East Johnson Avenue include Lou-Jan Tool and Die, Inc., New England Entrance Co., and C.C. East - Central Transport, to the west; the two private residences and Delucia's Greenhouse to the south; and CNC Manufacturing and several commercial businesses to the east. The commercial businesses lease space in the building previously occupied by County-Wide Construction [26].

Table 3 presents identified structures or areas on the Alling Lander Company property that are potential sources of contamination, the containment factors associated with each source, and the relative location of each source.

TABLE 3
Source Evaluation for
Alling Lander Company

| Potential Source Area | Containment Factors | Spatial Location |
|--------------------------------------|---------------------------------------|--|
| Dumpster | None | West of paved parking lot. |
| Contaminated soil | None | North lawn, north of metal-sided shed. |
| Waste storage area | Drums, None | North of metal-sided shed. |
| Floor drain release | None | Floor drain in main building; released either to dry well or directly to the ground. |
| Septic system | None | Southeast of building. |
| Solvent tank | None, removed prior to September 1984 | West of building. |
| Storm drain/open culvert/catch basin | None | Five feet northwest of facility/along east lawn/east of driveway at well |

[9,14]

Table 4 summarizes the types of potentially hazardous substances that have been disposed of, used, or stored on the property. The volume and use of toluene, acetone, and the paints are not documented. These fluids were reported in CTDEP inspection reports between 1984 and 1985 as being on the Alling Lander property.

TABLE 4
Hazardous Waste Quantity for
Alling Lander Company

| Substance | Quantity or Volume/Area | Years of Use/Storage | Years of Disposal | Source Area |
|------------------------------|----------------------------|-------------------------|----------------------|---------------------|
| Waste TCA | 665 gallons/year | 1980-1984 | 1983-1985 | Waste storage area |
| Waste TCA | 55 gallons | N/A | ≈ 1980 | Floor drain release |
| Waste Cool-Tool (33% TCA) | 2 to 8 drums / month | 1980-1984 | 1984 | Waste storage area |
| TCE Stillbottoms | Unknown | 1980-1984 | 1980-1984 | Dumpster |
| Cooling water | Unknown | 1980-1984 | 1980-1983 | North lawn |
| Cooling water | Unknown | 1984-1988 | 1984-1988 | Septic system |
| Toluene | Unknown | 1980-1988 | Unknown | Drum storage areas |
| Acetone | Unknown | 1980-1988 | Unknown | Drum storage areas |
| Epoxy paints | Unknown | 1980-1988 | Unknown | Unknown |
| Lacquer paints | Unknown | 1980-1988 | Unknown | Unknown |

N/A = Not available

[14]

Three properties are located to the west of Alling Lander on East Johnson Avenue: New England Entrance Co., Lou-Jan Tool and Die, and an abandoned farm. These properties are all topographically higher in elevation than Alling Lander [9,30]. None of these properties are listed in either the CERCLA Information System (CERCLIS) or the RCRA Information System (RCRIS) [28,29]. There are 17 CERCLIS entries in the town of Cheshire and 17 CERCLIS entries in the town of Southington, located to the north of Alling Lander [28]. There are 12 businesses listed in RCRIS as either large quantity generators, transporters or storage facilities of hazardous substances in the town of Cheshire. There are 17 such businesses in the town of Southington [29].

WASTE/SOURCE SAMPLING

On November 8, 1983, personnel from the CT DEP Water Compliance Unit (WCU) collected samples of waste oil stored in drums and machine coolant used in process equipment at Alling Lander for quantitative analysis by the Connecticut Department of Health Services (CT DOHS) (Attachment A) (CT DEP 1983a). Additional samples of sod and groundwater were collected on various occasions during 1983 from the property and in nearby private water supply wells for VOC analysis by Heynen Engineers (and analyzed by Industrial Corrosion Management Inc. (ICM)), the WCU (and analyzed by the CTDOHS), and the Chesprocott Health District (for analysis by the SCCRWA) (Heynen 1984a) [14].

Five VOCs (1,1,1-trichloroethane, trichloroethylene, "1-dichloroethane" [sic], methylene chloride, and tetrachloroethylene) were found at the highest concentrations detected in the soil sample collected by WCU on November 8, 1983 from the rear of the property [north of the building] (CT DOHS 1983b). This sample also contained (cis) 1,2-dichloroethene, mixed xylenes, and toluene (CT DOHS 1983b). Of the eight VOCs detected in the soil sample, five of them (1,1,1-trichloroethane, trichloroethylene, tetrachloroethylene, toluene and mixed xylenes) were also detected in the analysis of Alling Lander's process by-product waste oil (CT DOH 1983a) [14].

Toluene and mixed xylenes, the remaining VOCs detected in the analysis of the bulk waste oil sample, were detected at their highest concentrations on the property at two different soil sample locations. Toluene (toluol) was detected at a concentration of 260 $\mu\text{g/l}$ in the soil sample collected from the Alling Lander sediment pond (location unknown) and mixed xylenes were detected at 40 $\mu\text{g/kg}$ in the sludge sample collected from the septic tank [in the southern corner] (CT DOHS 1983c) [14].

Table 5 presents a summary of the samples collected and the concentrations of the contaminants detected in these samples. The bulk sample was collected from one of the drums of waste cutting oil stored in the waste drum storage area [9]. The grab sample from the rear of the property was collected from the north lawn, where Alling Lander employees deposited sludge waste [7,8]. The SI report indicated that a sample was collected from a sediment pond. During CDM's onsite reconnaissance, the field team did not observe any signs of a sediment pond or an area that may have previously been a sediment pond [1]. Because the exact location of the samples collected in 1983 and 1984 was never documented, they are not included in the figures in this report.

TABLE 5
Waste/Source Samples
Collected by CTDEP in 1983 and 1984

| Sample Media | Sample Type, Location & Number | Date Collected | Compound | Concentration |
|--------------|---|----------------|---|--|
| Bulk Samples | Waste Oil 1906 | 1/9/84 | TCA | < 8,600,000 µg/l > |
| | | | TCE | < 1,500,000 µg/l > |
| | | | xylenes | < 20,000 µg/l > |
| | | | toluene | < 10,000 µg/l > |
| | | | PCE | < 7,500 µg/l > |
| Sludge/Soil | Six Inch Grab Sample from Rear of Property, North of Building 30757 | 11/8/83 | TCA TCE 1-dichloroethane [sic] methylene chloride PCE | 53,000 µg/kg 1,300 µg/kg 600 µg/kg 600 µg/kg 100 µg/kg |
| | Grab Sample from Catch Basin Near Loading Dock 33434 | 12/8/83 | (cis)1,2-dichloroethene | 560 µg/kg |
| | Grab Sewage Sample from Septic Tank 34160 | 12/19/83 | mixed xylenes | 40 µg/l |
| | Composite Sample from Alling Lander Sediment Pond 34163 | 12/19/83 | toluene | 260 µg/kg |
| | "Soil/Sludge" from Catch Basin in Rear (north) of Building | 2/3/84 | (t)1,2-dichloroethylene [sic] | 180 ppb |
| | | | vinyl chloride | 118 ppb |

< n > The compound's peak area detected during analysis

µg/l micrograms per liter

µg/kg micrograms per kilogram

ppb parts per billion

[14]

In 1991, HRP installed groundwater monitoring wells and performed test borings [10]. Following is a summary of the activities and results presented in HRP's Phase II Subsurface Investigation at the Former Alling-Lander Site. See attachment B for a summary of the analytical results and Figure 3: HRP Waste/Source Sampling Locations for the locations of the test borings and soil samples.

HRP retained the services of Kennedy and Sons Test Borings, of Naugatuck, CT, and Associated Drilling Co., of Meriden, CT, to install four monitoring wells [MW-1, 4, 6, and 8] and ten test borings on-site. The monitoring wells, designated by the prefix MW-, and ten test borings, prefixed by TB-, were installed, beginning on July 1, 1991. [Attachment B] shows the locations of the monitoring wells and test borings. Drilling was completed on July 10, 1991. HRP sampled the monitoring wells on July 22, 1991. In addition HRP collected soil samples by hand from the ground surface in certain portions of the site [10].

None of the analyzed soil samples contained detectable concentrations of Halogenated Volatile Organic Compounds, cadmium, or chromium. [The concentrations of lead and nickel in the analyzed soil samples are presented in Attachment B]. Despite the fact that no volatile compounds were detected in the samples. PID screening, staining, and odor in some samples suggest that contaminated soil is present in certain areas on the site. HRP believes that organic compounds not determined by EPA Method 8010 (Halogenated Volatile Organic Compounds) are present in some of these soils, and that a general Total Petroleum Hydrocarbons scan (EPA Method 418.1) would have detected them [10].

In 1992, HRP conducted test pitting and test boring activities and a soil gas survey at the Alling Lander property to determine the extent of contaminated soil. HRP determined that there was extensive subsurface soil contamination underneath and to the southeast of the building [11]. Most of the samples were collected to the southeast of the building. See Attachment C for a summary of the analytical results. Following is a summary of the activities and results presented in HRP's Report on Installation of Additional Wells, Test Borings, and Test Pits, and Soil Gas Survey, June 29, 1992.

Test Pits

Test pits were excavated on the site as shown [in Attachment C]. Test pit 1 was installed to attempt to locate a dry well shown on plans of the site, but it did not encounter the dry well. Subsequent soil gas sampling points installed in the area did not detect any volatile organic contamination [11].

Test pit 2 was installed in an attempt to sample the bottom of a second dry well southeast of the building [Attachment C]. This dry well had been sampled to a limited extent by split-spoon during previous drilling operations. Because of excessive caving of the walls of the excavation, only one sample of the base of the dry well could be obtained (sample TP2-2). It was analyzed by EPA Method 8010 and found not to contain detectable halogenated organic compounds (i.e., chlorinated solvents) [11].

Test pit 3 was a trench approximately 3 feet wide and 3 feet deep installed along the face of the building over a distance of about 60 feet. This area is believed to be outside of the vicinity of a former degreaser. Soil in the pit near the former degreaser was found to be contaminated by trichloroethylene (TCE). Samples were collected at the bottom of the trench at distances of 29, 39, 51, and 58 feet from the southwest corner of the building. These samples, designated TP3-29, TP3-51, etc., were analyzed by EPA Method 8010. At 39 feet from the corner, samples were collected from both the north and south walls of the trench; these were designated TP3-39N and TP3-39S, respectively. A soil sample was also collected at a depth of about 8 inches from the area between test pit 3 and the building. The sample was designated TP3-39NN [11].

(b) (9)

HRP WASTE/SOURCE SAMPLING LOCATIONS
ALLING LANDER COMPANY
CHESHIRE, CONNECTICUT



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Figure 3

The soil samples collected in the trench in the area outside of the former degreaser contained concentrations of TCE and other chlorinated volatile organic compounds in excess of State of Connecticut standards. The samples from the 39 foot mark (N and S) contained the highest concentrations, up to 355,908 ppb. The shallow sample from this area (TP3-39NN) showed lower levels of TCE (4,280 ppb) [11].

Test Borings

Eleven test borings were also installed on the property during this phase of investigation. Test borings 18 through 22 were installed to provide information about the extent of soil contamination by trichloroethylene near the former degreaser. Test boring 18 extended to a depth of 32 feet below grade; samples were collected continuously to a depth of 10 feet and every five feet thereafter. Distinct indicating volatile organic contamination were present in the samples collected above 17 feet below grade. In the samples collected from 20'-22', 25'-27' and 30'-32', faint or very faint odors of chlorinated solvents were detected. Samples from 8'-10' and 25'-27' were submitted for laboratory analysis). The 8'-10' sample contained trichloroethylene at a concentration of 85,320 ppb, whereas the 25'-27' sample did not contain detectable trichloroethylene [11].

Soil Gas Survey

A soil gas survey was performed through the floor of the building and in the adjoining area outside of the building around the suspected dry wells. . . . A Photovac 10S55 portable gas chromatograph (GC) was used to determine the concentrations of halogenated organic compounds (t-1,2-dichloroethylene, 1,1,1-trichloroethane, trichloroethylene, and tetrachloroethylene), benzene, and toluene in the gas samples. Water-based standards of known composition were analyzed after every five to eight unknowns in order to maximize instrument precision. Blanks were also run occasionally (especially after samples containing high concentrations of chlorinate compounds) to ensure that the hypodermic syringes had not become contaminated [11].

[Attachment C] gives concentrations of chlorinated compounds detected during the soil gas survey. Benzene and toluene were also present in standards used for the survey, and the unknown samples were allowed to elute for time sufficient to determine benzene and toluene. Neither benzene nor toluene were detected in any analyzed soil gas sample [11].

. . . the most significant source of trichloroethylene (TCE) is located near the former vapor degreaser. The highest concentration of TCE found in the soil gas survey was located outside the building at gas sampling point 32, where the concentration of TCE was off-scale (more than 100 ppm) [11].

GROUNDWATER PATHWAY

In the vicinity of the Alling Lander property, surficial geology is composed of kame-delta deposits, described as consisting of crossbedded coarse sand to cobble gravel, underlain by medium sand. According to well boring logs for monitoring wells drilled on the Alling Lander property, the surficial materials are mainly fine to medium sand. Bedrock underlying the site is New Haven Arkose, a red-brown to grayish-red micaceous feldspathic arenite or arkose. The depth to groundwater under the Alling Lander property varies between 68 and 80 feet below ground surface (bgs) (approximately 120 to 110 above mean sea level). The depth to bedrock is approximately 190 to 200 feet (0 to 10 feet below mean sea level). Groundwater underlying the Alling Lander property flows east southeast into a buried valley cut in the bedrock just to the east of the Alling Lander property. The valley trends north-northwest at a depth slightly below sea level. Because it is cut below sea level, it is almost certainly of glacial origin [9].

Table 6 lists the public groundwater supply wells located within 4 miles of Alling Lander Company. The Cheshire, Southington, and Meriden water departments derived their drinking water from multiple groundwater wells and reservoirs. The populations apportioned to the various wells and reservoirs have been determined by calculating the ratio of the amount of water delivered by each well or reservoir to the volume of water delivered by the entire system. This ratio is then multiplied by the population served by the entire system. Several of the wells listed in the Atlas of Public Water Supply Sources and Drainage Basins of Connecticut are no longer being used. These wells have been designated by N/A in the estimated population served column.

TABLE 6

Public Groundwater Supply Sources Within 4 Miles of Alling Lander Company

| Distance/ Direction from Property | Source Name | Location of Source | Estimated Population Served | Source Type |
|---|--|-----------------------|-----------------------------------|---|
| 0.75 mile/ North | Southington Well #2 | Southington | 6,125 | 67 feet deep; stratified drift |
| 0.9 mile/ South | North Cheshire Wellfield (5 wells) | Cheshire | 12,110 | Drilled between 96 and 110 feet in stratified drift |
| 2.1 miles/ North | Southington Well #5 | Southington | N/A | Discontinued |
| 2.4 miles/ Southwest | Greenshire School | Cheshire | N/A | Discontinued |
| 2.7 miles/ North- northeast | Southington Well #7 | Southington | 6,125 | 93 feet deep; stratified drift |
| 2.7 miles/ North- northeast | Southington Well #8 | Southington | 6,125 | 59 feet deep; stratified drift |

TABLE 6
(continued)

| Distance/ Direction from Property | Source Name | Location of Source | Estimated Population Served | Source Type |
|---|-----------------------------------|-----------------------|-----------------------------------|---------------------------------------|
| 3.0 miles/ Southeast | Dossin Beach Well | Meriden | N/A | Discontinued |
| 3.0 miles/ Southeast | Platt Street Well | Meriden | 4,929 | 52 feet deep; filter packed |
| 3.1 miles/ Southeast | Lincoln Well | Meriden | 5,830 | 77 feet deep; filter packed |
| 3.2 miles/ Southeast | Cuno Well | Meriden | N/A | Discontinued |
| 3.5 miles/ North | Southington Well #1A | Southington | 6,125 | 67 feet deep; stratified drift |
| 3.6 miles/ West | Blueberry Hills | Cheshire | N/A | Discontinued |
| 3.65 miles/ Southeast | Evansville Ave. East | Meriden | 9,805 | 80 feet deep; filter packed |
| 3.65 miles/ Southeast | Evansville Ave. West | Meriden | 9,805 | 62 feet deep; filter packed |
| 3.7 miles/ West | Alma Properties | Cheshire | <25 | Non-community |
| 3.8 miles/ West- southwest | Mayview Ave. Community Well | Cheshire | N/A | Discontinued |
| 3.85 miles/West- southwest | New Lakeview Convalescent Home | Cheshire | 370 | 6 wells; drilled and gravel packed |
| 3.88 miles/ West- southwest | Lakeview Apartments | Cheshire | 19 | 425 feet deep; bedrock |
| 3.9 miles/ West- southwest | Hillview Well | Cheshire | 37 | 12 feet deep; dug |
| 3.95 miles/ East | Columbus Park | Meriden | 3,922 | 72 feet deep; filter packed |
| 3.99 miles/ North | Southington Well #3 | Southington | 6,125 | 70 feet deep; stratified drift |
| 3.99 miles/ East | Mule Wellfield | Meriden | 1,961 | 39.5 feet deep |

N/A = Not applicable, well no longer in service.

<25 = Well is not a community well, CTDEP community well reporting in error.

[3,4,14,20,21]

Frost Associates has determined the estimated population served by private wells by summing the total number of drilled and-dug wells within each CENTRACTS block (a cartesian data management system utilized by the census bureau) and multiplying this total by the average

number of people in each household [6]. Frost Associates reports that approximately 41 people are served by private wells within 0.25 mile, 156 people between 0.25 to 0.5 mile, and 583 people between 0.5 and 1.0 mile from Alling Lander [6].

Estimating from a U.S. Geological Survey topographic map of the Southington, Connecticut Quadrangle, and a database of drilled wells in Cheshire, no residences within 0.25 mile are served by private drinking water wells [9]. There are 16 residences that have drilled wells between 0.25 and 1 mile distance from Alling Lander. Of these 16 residences, the four nearest to Alling Lander have been connected to the SCCRWA municipal supply. Only 12 residences are served by private wells between 0.25 and 1 mile from the facility [6,9]. The discrepancy between the Frost Associates report and the actual estimated populations indicates that the cartesian system utilized by the CENTRACTS system and the radial system used to document the number of people within each distance ring are not comparable. As a conservative estimate, 36 people have been apportioned to the 0.25 to 0.5 mile ring and the remaining population figures within 0.5 mile presented in the Frost Associates report have been added to the 0.5 to 1-mile distance ring. This measure accounts for the wells located in the CENTRACTS report that have been apportioned to the incorrect distance ring. Public water supply wells located in the same or overlying aquifer as that which underlies Alling Lander are presented in this table as well [4].

In Connecticut, community water systems are required to map aquifer protection areas. The Alling Lander property is located in the North Cheshire wellfield aquifer protection area as well as the aquifer protection area for Southington Well #2 [9,13].

The residences that depended on the wells within 0.25 mile distance from the Alling Lander Company were connected to the municipal water system as a result of the CTDEP Water Compliance Order 4516. This order mandated that Alling Lander provide long-term water supplies to those residences that had contaminated private well water [9].

Table 7 lists the total number of people served by private and public drinking water sources drilled or dug within 4 miles of the Alling Lander Company property.

TABLE 7

**Estimated Drinking Water Populations Served by Groundwater Sources
Within 4 Miles of Alling Lander Company**

| Radial Distance From Alling Lander Company (miles) | Estimated Population Served by Private Wells | Estimated Population Served by Public Wells | Total Estimated Population Served by Groundwater Sources Within the Ring |
|--|--|---|---|
| 0.00 - 0.25 | 0 | 0 | 0 |
| > 0.25 - 0.50 | 36 | 0 | 36 |
| > 0.50 - 1.00 | 744 | 18,235 | 18,979 |
| > 1.00 - 2.00 | 1,306 | 0 | 1,306 |
| > 2.00 - 3.00 | 1,468 | 17,179 | 18,647 |
| > 3.00 - 4.00 | 3,644 | 43,999 | 47,643 |
| TOTAL | 7,198 | 79,413 | 86,611 |

[3,4,6,20,21]

The groundwater underlying the southern portion of the property is classified as GB/GA (presumed not potable without treatment, but the goal of the state is to raise the quality to that of potable water). The groundwater underlying the northern portion of the property is GA (presumed potable without treatment) [9].

The nearest well to the Alling Lander Company property was a drinking water well previously used by the 50 employees of the company. In 1983, the Alling Lander Company well and three other wells were taken out of service due to elevated chlorinated solvent concentrations, specifically TCE. See Attachment D for the location of the contaminated private wells. In 1984 and 1985, the County-Wide Construction private well, the Zalenski private well (56 feet bgs), the Bennett private well (189 feet bgs), and the SCCRWA North Cheshire wellfield all contained water with TCE concentrations greater than 5 ppb (see Attachment A for a summary of the historical TCE concentrations in the residential wells) [14].

On May 5, 1987, the CTDEP Water Compliance division issued Order No. 4516, requiring that Alling Lander remove contaminated soils and provide neighboring residences with potable water. The private residences were connected to the SCCRWA municipal water supply lines by 1990 [9,14].

SCCRWA samples raw water from the North Cheshire wellfield intakes once per week. The raw water in North Cheshire PW #5 has consistently contained concentrations of TCE between 13 and 26 ppb [18]. A contemporaneous comparison of contaminant concentrations at Alling Lander and SCCRWA wells shows that the concentration of TCE in MW-4 on July 27, 1991 was 338 ppb, while the concentration of TCE in SCCRWA PW #5 on July 23, 1991 was 25.1 ppb [10,18]. The concentration of TCE in MW-17 on June 12, 1992 was 210 ppb while the concentration of TCE in SCCRWA PW #5 on June 16, 1992 was 21.3 ppb [11,18]. The concentration of TCE remains high in SCCRWA PW #5; the highest concentration recorded in 1993 was 25.1 ppb [17].

In 1990, the last time the Chesprocott Health District collected a sample from the private well serving the Zalenski residence, the tap-water contained TCE at a concentration of 15 ppb [17]. The Zalenski residence is located approximately 800 to the east of the Alling Lander property [9].

Table 8 presents a summary of the contaminants detected in groundwater samples collected from onsite monitoring wells and drinking water wells to the east and southeast of the property. The locations of these samples are presented in Figure 4: 1992 HRP Groundwater Sampling Locations. In 1991 and 1992, HRP collected samples from old and new monitoring wells [10,11,24]. CDM did not receive the full analytical results for the HRP investigations. The analytical results are found in the attachments to the reports reviewed by CDM. See Attachment B, Table 5 and Attachment C, Table 4, for a summary of the analytical results. The results presented below in Table 8 are, for the most part, the highest concentrations detected in wells sampled prior to HRP's activities. As there are no other apparent sources of VOCs to the west of Alling Lander, the reference concentrations of TCE, TCA, and PCE are 0 µg/l. See Attachment A for a more complete listing of the concentrations of TCE in the private drinking water wells.

TABLE 8

**Analytical Results of Groundwater Samples Collected from
Monitoring Wells and Drinking Water Source Wells**

| Type of Well | Location & Number | Date Collected | Compound | Concentration | MCLs |
|-------------------------------------|---|----------------|----------------------------------|------------------------------------|-------------------------------|
| Monitoring Wells (Alling Lander) | Monitoring Well AL-2 8505 | 4/2/84 | TCE TCA 1,1-dichloroethene | 50 µg/l 100 µg/l < 10 µg/l > | 5 µg/l 200 µg/l 70 µg/l |
| | AL-3 | 5/5/84 | TCE | 9 µg/l | 5 µg/l |
| | AL-4 | 5/5/84 | TCE | 18 µg/l | 5 µg/l |
| | AL-5 | 5/5/84 | TCE | 1.3 µg/l | 5 µg/l |
| | AL-8 | 5/16/86 | TCE | ND | 5 µg/l |
| | AL-9 | 5/16/86 | TCE | 37 µg/l | 5 µg/l |
| Drinking Water (Private Wells) | 251 East Johnson Avenue (Iganovich) | 10/18/83 | TCA TCE | ND ND | 200 µg/l 5 µg/l |
| | 300 East Johnson Avenue (Alling Lander) | 10/5/83 | TCE TCA | 19 µg/l 12 µg/l | 5 µg/l 200 µg/l |
| | 312 East Johnson Avenue (Cheshire Manufacturing) | 10/5/83 | TCE TCA | 16 µg/l 2.7 µg/l | 5 µg/l 200 µg/l |
| | 340 East Johnson Avenue (Bennet) | 4/84 | TCE | 78 µg/l | 5 µg/l |
| | 342 East Johnson Avenue (County-Wide) | 10/83 | TCE | 1,500 µg/l | 5 µg/l |
| | 344 East Johnson Avenue (Dube) | 10/5/83 | TCE TCA | 64 µg/l 14 µg/l | 5 µg/l 5 µg/l |
| | 368 East Johnson Avenue (Zalenski) | 5/84 | TCE | 167 µg/l | 5 µg/l |
| | 431 East Johnson Avenue (E. Pasqualoni) | 3/85 | TCE TCA | 1.4 µg/l 0.2 µg/l | 5 µg/l 200 µg/l |
| | 443 East Johnson Avenue (G. Pasqualoni) | 3/85 | TCE TCA | 0.2 µg/l 1.6 µg/l | 5 µg/l 200 µg/l |
| | | | | | |
| Drinking Water (Public Wells) | North Cheshire Wellfield (0.9 mile south) | 1993 | TCE | 25.1 µg/l | 5 µg/l |
| | | | PCE | 1.8 µg/l | 5 µg/l |
| | | | TCA | 1.1 µg/l | 200 µg/l |

<n> The compound's peak area detected during analysis
 µg/l micrograms per liter
 MCL maximum contaminant level in drinking water (EPA, 1993)
 ND not detected
 [9,14,15,18]

(b) (9)

1992 HRP GROUNDWATER SAMPLING LOCATIONS
ALLING LANDER COMPANY
CHESHIRE, CONNECTICUT



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Figure 4

There are currently 16 monitoring wells on and near the Alling Lander property (see Figure 2: Site Sketch) [1]. These wells have been installed by Heynen Engineers (AL1-AL5), Dames & Moore (AL-8, AL-9), HRP (MW-X), and other unidentified parties (TW-X) (see Figure 4: 1992 HRP Groundwater Sampling Locations) [9]. Monitoring well AL-2 was destroyed when the contaminated soil was removed from the area to the north of the metal-sided shed in 1987 [9,14].

Following the discovery in 1983 of [TCE] in nearby wells, Heynen Engineers, Inc., of Clinton, CT, investigated the site specifically to determine if it was the source of the [TCE] contamination . . . [9].

Heynen Engineers installed five groundwater monitoring wells in February and March, 1984. Two of the wells were on the property; at third was on the adjoining property. . . The other wells were located on nearby properties [9].

Samples of ground water were collected from the wells and analyzed for the presence of Halogenated Volatile Organic Compounds. Well A-2, located near the sheds along the western property margin (and since destroyed), was found to contain 42 to 50 ppb [TCE] [9].

Heynen Engineers stated in their conclusion that "it appears unlikely that Alling-Lander is the source of the TCE..." [9].

Legette, Brashears, and Graham (LBG) reviewed Heynen Engineers' report in a letter dated November 8, 1984. LBG criticized Heynen Engineers' calculations of hydraulic gradient and ground water flow velocities; their recalculation suggests that the Alling-Lander site could have contributed to the [TCE] contamination in neighboring wells. HRP agrees with LBG both by criticizing Heynen Engineers' calculations and in the conclusion that, on data available in 1984, Alling-Lander could be a contributor of contamination to the neighboring sites [9].

References to a report by Dames and Moore, plus the existence of three monitoring wells not mentioned in the reports or CT-DEP documents reviewed by HRP, indicate that other work was performed on the site and that at least one other report was prepared. . . . Wells AL-8 and AL-9 were drilled on the property on April 28 and 29, 1986, to depths of 191 (refusal) and 135 feet below grade, respectively. The surface elevation at the wells is 194 feet above [the national geodetic vertical datum]. Both wells installed with 60 of screen and five-foot thick bentonite seals. No halogenated volatile organic compounds were detected in samples collected from the wells on May 2, 1986 [9].

According to a letter submitted to the CTDEP Water Compliance Unit by SCCRWA, on May 16, 1986, an Alling Lander consultant collected samples at three unspecified depths from Wells AL-8 and AL-9. The depths were designated top, middle, and bottom. No VOCs were detected in AL-8. In the top and middle sample collected from AL-9, TCE was detected at 37 $\mu\text{g/l}$ and 17 $\mu\text{g/l}$, respectively. On June 2, 1986, SCCRWA collected a sample from each well. Again, no VOCs were detected in AL-8. TCE was detected at all three levels of AL-9; 22 $\mu\text{g/l}$ at the

top, 36 $\mu\text{g/l}$ in the middle, and 17 $\mu\text{g/l}$ at the bottom. The analytical methods used and detection limits for these sampling activities were not available to CDM [15].

The existence of well TW-2, which was found during inspection but is not mentioned in any of the reports reviewed by HRP, suggests that other work has been performed on the site and that other reports may have been prepared [9].

[In July 1991, HRP installed four new monitoring wells, MW-1, MW-4, MW-6, and MW-8 (see Figure 4: 1992 HRP Groundwater Sampling locations)]. On July 22, 1991, HRP personnel measured the ground water level and sampled ground water in the existing on-site monitoring wells. Wells AL-3 and AL-9 could not be opened sufficiently to allow collection of ground water samples, although well AL-3 could be pried open enough to allow measurement of the ground water elevation. Water levels were measured using a Slope ground water elevation indicator, which activates a buzzer when the probe encounters an electrically conducting medium (e.g., ground water). As expected, ground water head decreases toward the southeast . . . The value of the hydraulic gradient is about 0.041 ft/ft, which is unexpectedly steep. The steep gradient and the fact the ground water at the site is less than 8 feet above the Quinnipiac River (2,000 feet away) suggest the presence of a nearby pumping well [10].

Halogenated Volatile Organic Compounds were detected at low to moderate concentrations in water samples from several of the wells. [See Attachment B for a summary of the analytical results.] Samples from wells, MW-4, MW-6, and MW-8 exceeded the Volatile Organic Action Level (VOAL) for trichlorethylene. The VOAL's for tetrachloroethylene and 1,1,1-trichloroethane, and the MCL for t-1,2-dichloroethylene were not exceeded by any analyzed sample. The State of Connecticut Department of Health Services (CT-DOHS) uses these concentrations (VOAL's) as standards for potable water. Neither an MCL nor a VOAL has been established for 1,1,2-trichloroethane [10].

The highest concentration of TCE was detected in monitoring well MW-4 (338 ppb). This well is located off the southeast corner of the building in the vicinity of the septic system. Monitor well MW-6 contained the second highest concentration of TCE (108 ppb); this well is also southeast of the building in the vicinity of reported dry wells. Monitoring well MW-8, which had a concentration of 13 ppb TCE, is located off the northeast corner of the building [10].

Based on the observed concentrations of halogenated compounds in the ground water samples, HRP believes that the most likely explanation of their origin is that the 1,1,1-trichloroethane and tetrachloroethane were present as impurities in a nominal trichlorethylene solvent, which was released to the ground and ultimately infiltrated to the ground water system. Trichlorethylene is known to degrade to t-1,2-dichloroethylene, thus degradation is probably the origin of the t-1,2-dichloroethylene [10].

The sample from well MW-6 and its duplicate (labelled MW-16) were determined to have identical concentrations of halogenated compounds . . . [10].

Three 2" Schedule 40 PVC wells [MW-15, MW-16, MW-17] were installed on the property [in the 1992] phase of the subsurface investigation. The wells are shown on [Figure 4: 1992 HRP Sampling Locations]. Drilling operations were conducted between April 29 and May 6, 1992. Samples of the subsurface sediment were collected at intervals varying with depth during installation of the two wells using a two-foot split-spoon sampling device . . . [11].

The wells previously installed by other consultants were locked and therefore inaccessible at the time of initial sampling. A second attempt was made to sample these wells on June 12, 1992. At that time, several of these wells were accessed and sampled. These included AL-3, AL-4, AL-8, TW-2, UW-7, TW-6 and AL-9 [11].

Two of the samples collected were inadvertently mislabelled in the field. Sample TW-2 is actually from well TW-6, and the sample labelled MW-2 comes from well TW-2. Note: Well TW-6 is north of TW-2 and is off the map [Figure 4] [11].

Water samples were analyzed for Halogenated Volatile Organic Compounds (EPA Method 8010). . . The highest concentrations of chlorinated organic compounds were found in wells located near the southeast side of the building. Volatile organic compounds (VOCs), namely trichloroethylene (TCE), were detected above State of Connecticut Volatile Organic Action Level (VOAL) of 5 ppb in wells MW-6, MW-4, MW-16, MW-17 and AL-8. The levels exceeding the VOAL ranged from 61 to 210 ppb. The highest concentration (210 ppb) was found in well MW-17, located downgradient from the former degreaser location [11].

The concentrations of TCE are very similar (132 - 210 ppb) in the wells along the southeast side of the building near the former degreaser and dry wells. The TCE concentrations in well pair 4 ("shallow") and 16 ("deep") are essentially identical. HRP suspects that these findings are the result of the excessive depth to water (75+ feet) at the site. Uniformity of concentrations could result from dispersion of contamination as the contaminant plume migrates downward [11].

The new upgradient well (MW-15) contained a trace level (5 ppb) of TCE. Trace levels (1 to 5 ppb) of TCE were detected in wells MW-1, TW-2, TW-6, and AL-3. These wells are scattered throughout the site [see Figure 4], suggesting that there may be low level ground water contamination by TCE in the general site area. The levels of TCE in the wells near the southeast side of the building, however, were distinctly higher, suggesting a definite on-site source of TCE in this area [11].

SURFACE WATER PATHWAY

The Alling Lander property consists of moderately permeable sandy soils. The property slopes to the south towards East Johnson Avenue. The Alling Lander property lies outside of the 500-year floodplain. The property to the north of the Alling Lander Company is primarily level, resulting in a small upgradient drainage area. The surficial runoff flows both along East Johnson Avenue and, to the southeast, 3,000 feet into the Quinnipiac River. The probable point of entry (PPE) of contaminants is the point at which the surface runoff water enters the Quinnipiac River, approximately 3,000 feet to the southeast of the Alling Lander property [9]. There is the potential for groundwater discharge to the surface water also approximately 3,000 feet southeast of Alling Lander [9,30]. Due to the distance to the river and the bedrock valley between the facility and the river, contaminants in the groundwater are not expected to migrate into the Quinnipiac River. The entire 15-mile downstream surface water pathway is within the Quinnipiac River [30]. The 15-mile limit extends south to the southern portion of the Quinnipiac River State Park [14].

In the vicinity of the PPE, CTDEP has assigned the Quinnipiac River a surface water class of C/B_c. CTDEP defines the water classification C as suitable for boating, may have limited suitability for certain fish or wildlife, and may or may not be suitable for bathing; and B_c as suitable for bathing and other recreational purposes, may be suitable for agriculture, and also suitable for cold-water fish [9].

There are two surface water flow rate gaging stations monitored by the U.S. Geological Survey on the Quinnipiac River. The annual average discharge rate of the Quinnipiac River 4 miles upstream of the PPE is 36 cubic feet per second (cfs). The annual average discharge of the Quinnipiac River nearly 10 miles downstream of the PPE is 214 cfs. The flow rate of the Quinnipiac River at and below the PPE is estimated as greater than 100 cfs [31].

There are no documented surface water intakes used for drinking water purposes along the Quinnipiac River [14]. The CTDEP and the Quinnipiac River Watershed Association stock the Quinnipiac River with trout. People fish in the river at the Quinnipiac Gorge, located approximately 5 miles downstream from the PPE [22]. There are 23.5 miles of wetlands frontage along the Quinnipiac River [14].

SOIL EXPOSURE PATHWAY

From 1980 through 1988, Alling Lander employed 50 people in the gear box manufacturing process [14]. Between 1988 and 1992, various occupants, including County-Wide Construction and Sonnenshein Battereien, employed fewer than 50 [1,9,14]. The facility is currently unoccupied [1].

No barriers reduce access to the Alling Lander property [1]. A chain-link fence crosses the service driveway (western drive); however, the broad frontal area of the property, including the

woods to the north and the private residence to the south, indicate that there is a possibility that people enter the Alling Lander property [1,30]. The residence directly south of the Alling Lander Company is located approximately 300 feet south of the contaminated soil areas to the north and west of the main building [1].

Due to the location of the facility and its orientation to East Johnson Avenue, there are an estimated 100 people who live within 1-mile travel distance of the Alling Lander Company property [1,6,9,14,30]. Residences north of the facility do not have a direct route to the property [30].

In 1983 and 1984, the CTDEP WCU collected soil samples from several facilities along East Johnson Avenue. A soil sample collected in the north lawn, where sludge deposits had been previously noted and where the facility discharged cooling water, contained 53 parts per million (ppm) TCE [9]. Soil samples collected from the drum storage area contained PCE, TCE, and TCA. The soils were removed from this area. The soil removal activity was continued until samples collected from the boundaries of the excavation contained less than 10 ppm of the contaminants of concern [9]. CDM did not collect any surface soil samples during the SIP activities.

CDM did not observe any terrestrial sensitive environments located on the property [1]. The woods north of the facility might harbor terrestrial flora and fauna; however, CDM did not determine the species inhabiting this woodland tract.

Surface soil samples collected by HRP did not contain any halogenated hydrocarbons. Surface soil sample S1, collected from the west of the parking area contained 0.29 milligrams per kilogram (mg/kg) nickel. Surface soil sample S4, collected near an empty drum to the south of the parking area, contained 0.18 mg/kg lead [11].

AIR PATHWAY

The nearest people to the Alling Lander property live in the two residences located directly to the south of the main building [1]. These are both single-family residential buildings occupied by an estimated three people each. An estimated 63,585 people live within 4 miles of the facility [6].

The population figures presented in Table 9 do not reflect the number of students or workers who come within 4 miles of the facility during the day. Due to the rural nature of the immediate area, the figures presented are not significantly different for the populations within 1 mile of the facility.

TABLE 9
Estimated Population Within 4 Miles of
Alling Lander Company

| Radial Distance From Alling Lander Company (miles) | Estimated Population |
|--|----------------------|
| 0.00 - 0.25 | 108 |
| > 0.25 - 0.50 | 384 |
| > 0.50 - 1.00 | 1,793 |
| > 1.00 - 2.00 | 8,496 |
| > 2.00 - 3.00 | 18,430 |
| > 3.00 - 4.00 | 34,374 |
| TOTAL | 63,585 |

[6]

During CDM's onsite reconnaissance of Alling Lander, field personnel monitored the concentration of VOCs in the ambient air using an organic vapor monitor (OVM). The OVM did not register any VOC concentrations greater than the instruments detection limit of 1 ppm [1]. No air sampling has been conducted at Alling Lander.

The CTDEP Natural Resources Center maintains a natural diversity data base which tracks the location of state and federal-listed threatened and endangered species. The CTDEP data base does not have any record of any of these species existing within 1 mile of Alling Lander. There are three state-listed endangered and one state-listed threatened species between 1 and 2 miles from Alling Lander; four state-listed endangered and one state-listed threatened species between 2 and 3 miles from Alling Lander; and four state-listed endangered and two state-listed threatened species between 3 and 4 miles from Alling Lander. The peregrine falcon, a federal-listed endangered bird, was spotted in 1940, between 2 and 3 miles distance from Alling Lander [12].

SUMMARY

The Alling Lander Company (Alling Lander) operated a gear and gearbox manufacturing company at 300 East Johnson Avenue in Cheshire, New Haven County, Connecticut. The Alling Lander building is on an 8-acre lot bordered by two residential properties to the south and woods to the west and north; the lot steeply slopes down to the east, where it is bordered by property occupied by CNC Manufacturing Co., Inc. The main building, located in the center of the property, consists of two single-story sections built in 1962 (northern portion) and 1975 (southern portion).

There are several dry wells and two septic tanks, all located east of the southern building, which received septic effluent as well as reportedly received cooling wastewater. A drainage swale carries stormwater, collected by several catch basins located along the western side of the building, offsite to the east.

Prior to 1962, the property was undeveloped wooded land. Between 1962 and 1980, gears and gear boxes were manufactured at the Alling Lander property. The Federal Depositors Insurance Corporation currently holds the mortgage to the property. County-Wide Construction and Summit Construction Services leased the building from First Properties Limited as a warehouse between 1989 and 1990. The building is currently unoccupied.

The gear manufacturing process involved the drilling, boring, turning, and grinding of metal parts. The machines used in these processes were cleaned with chlorinated solvents. The cut and ground parts were also cleaned with a vapor degreaser, using trichloroethylene (TCE). Solvents used at Alling Lander Company (1,1,1-trichloroethane (TCA) and TCE) were deposited in drums stored inside and to the north of the steel shed. An inspection report filed by the Connecticut Department of Environmental Protection (CTDEP) in 1984 indicates that, prior to 1984, waste solvents were possibly deposited on the north lawn. A sample collected in 1983 by a CTDEP employee from the north lawn contained 53,000 micrograms per liter ($\mu\text{g/l}$) TCA and 1,300 $\mu\text{g/l}$ TCE. Solvents used in the machining process include TCA and TCE. A sample collected from a drum of waste cutting oil contained 8,600,000 $\mu\text{g/l}$ TCA; 1,500,000 $\mu\text{g/l}$ TCE; 20,000 $\mu\text{g/l}$ mixed xylenes; 10,000 $\mu\text{g/l}$ toluene; and 7,500 $\mu\text{g/l}$ tetrachloroethylene (PCE).

According to a memorandum written to the CTDEP Hazardous Waste Unit, Alling Lander Company admitted to having spilled the contents of an entire drum of either TCA or TCE within the building as early as 1979. Since there were floor drains in the building prior to 1983, it is possible that the contents of this spill infiltrated the subsurface soils below the building.

Prior to 1984, cooling water associated with the manufacturing process was discharged to the north lawn (exact location not documented). Starting in 1984, the cooling water was discharged directly to the septic system. Waste cutting oil and TCE were stored in drums to the north of the paint shed. In 1987, approximately 2,750 cubic feet of soil contaminated with TCA, PCE, and TCE were removed from this area. A dumpster used to dispose of metal shavings and TCE stillbottoms was located to the west of the parking lot. A soil sample collected on November 8, 1983, from a stained soil area near the dumpster revealed 53,000 parts per billion TCE.

Groundwater samples have been collected from the onsite drinking water source, downgradient wells, and several monitoring wells located at and near Alling Lander. The onsite wells have been sampled by CTDEP Water Compliance Unit, Chesprocott Health District, Heynen Engineers, and HRP Consultants. The Chesprocott Health District collected samples only from the Alling Lander Company drinking water well and other drinking water wells to the east of Alling Lander Company, on East Johnson Avenue. Most recently, HRP installed monitoring wells to the east of the dry wells. HRP collected groundwater samples from these wells in 1991 and 1992. Concentrations of TCE ranged between 100 to 300 $\mu\text{g/l}$ in monitoring wells to the southeast of the building.

In 1979, the South Central Connecticut Regional Water Authority (SCCRWA), discovered that the North Cheshire wellfield, located approximately 0.9 mile south of Alling Lander, was contaminated by TCE at concentration between 50 and 200 $\mu\text{g/l}$. Between 1979 and 1983, 40 deep and shallow monitoring wells were installed in the vicinity of the wellfield. In 1983, SCCRWA determined that the source was from offsite and north of the wellfield. Monitoring wells for this wellfield are located 0.33 mile south of Alling Lander Company.

In 1987, drinking water supplies to three private residences on East Johnson Avenue were converted from private wells to the SCCRWA municipal supply distribution system. Alling Lander paid for this conversion process as a result of orders issued by the CTDEP Water Compliance Unit.

Groundwater within 4 miles of Alling Lander supplies drinking water for approximately 87,000 people. There are no drinking water wells within 0.25 mile of Alling Lander. Groundwater flows east southeast underneath the Alling Lander property into a bedrock valley that carries water in a southerly direction. The SCCRWA's North Cheshire wellfield is located 0.9 mile to the south of Alling Lander.

The probable point of entry (PPE) of stormwater-borne contaminants is the point at which surface runoff water enters the Quinnipiac River, approximately 3,000 feet to the southeast of the Alling Lander Company property. The annual average discharge rate of the Quinnipiac River upstream of the PPE is 36 cubic feet per second (cfs). The annual average discharge of the Quinnipiac River downstream of the PPE is 215 cfs. The flow rate of the Quinnipiac River at and below the PPE is estimated as greater than 100 cfs. People fish in the river at the Quinnipiac Gorge, located approximately 5 miles downstream from the PPE. There are 23.5 miles of wetlands frontage along the Quinnipiac River.

An estimated 100 people live within 1-mile travel distance of the Alling Lander property. CDM did not document any terrestrial sensitive environments located on the property. The nearest people to the Alling Lander Company contaminants live in the two residences located directly south of the main building. These are both single-family residential buildings occupied by an estimated three people each. Sampling activities conducted by HRP in 1992 did not indicate the presence of any elevated concentrations of contaminants in the surface soils. An estimated 63,585 people live within 4 miles of the facility.

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